

-continued

miR-26b*	miR-883	miR-449a
miR-140	miR-541	miR-210
miR-128	miR-708	miR-188
miR-222	miR-196c	miR-410
miR-29a*	miR-216a	miR-101a*
miR-872	miR-146a	miR-147
miR-328	miR-27a*	miR-192
miR-760-3p	miR-223	miR-296
miR-295	miR-106b*	miR-196b
miR-151*	miR-466c	miR-433
miR-138	miR-490	miR-17-3p
miR-211	miR-326	miR-350
miR-339-5p	miR-664	miR-142-3p
miR-423	miR-770	miR-23a*
miR-101b	miR-652	miR-674-5p
miR-219-2-3p	miR-183	miR-214
let-7e*	miR-22	miR-540
miR-484	miR-485	miR-133b
miR-1224	miR-935	miR-29c*
miR-320	miR-532-5p	miR-758
miR-675	miR-764	miR-362
miR-105	miR-193	miR-34b
miR-874	miR-672	miR-409-3p
miR-500	miR-325-5p	miR-185
miR-501	miR-760-5p	miR-344-5p
miR-347	miR-346	miR-294
miR-338	miR-301a	miR-31
miR-671	miR-488	miR-125b-3p
miR-34c*	miR-539	miR-204*
miR-92b	miR-132	miR-361
miR-29b-2*	miR-126*	miR-711
miR-298	miR-99b	miR-215
miR-139-3p	miR-125a-3p	miR-301b
miR-342-5p	miR-181d	miR-206
miR-877	miR-543	miR-370
miR-99a*	let-7b*	miR-130a
miR-129*	miR-99b*	miR-193*
miR-181c	miR-463	miR-873
miR-21*	miR-146b	miR-218
miR-25*	miR-343	miR-124
miR-143	miR-205	miR-130b

[0386] miRNA levels were analyzed in ZSF1 animals treated with B2+B4 (day 197) and compared to the miRNA levels in ZSF1 animals treated with PBS vehicle (day 197). A fold change was observed for the following miRNAs:

miR-143	miR-24-2*	miR-98
miR-370	miR-26b	miR-434
miR-351	miR-375	miR-339-5p
let-7a	let-7f	miR-296
miR-152	miR-206	miR-667
miR-141	miR-29a	miR-181b
let-7c	miR-100	miR-324-5p
miR-222	miR-29c	miR-30e
miR-362	miR-16	miR-10a-5p
miR-200a	miR-96	miR-125a-5p
miR-188	miR-151	miR-29b
miR-429	miR-125a-3p	miR-28*
miR-505	miR-195	miR-106b*
miR-21	miR-210	miR-30a
let-7e	miR-742	miR-423
miR-182	miR-30d	miR-19b
let-7b	miR-194	miR-500
let-7i	miR-433	miR-92a
miR-200c	miR-23b	miR-291a-5p
miR-99a	miR-124	miR-181d
miR-221	miR-101b	miR-320
miR-30b-5p	miR-497	miR-345-3p
let-7d	miR-425	miR-764
miR-103	miR-347	miR-191
miR-148b-3p	miR-19a	miR-10b
miR-26a	miR-431	miR-298

-continued

miR-186	miR-17-5p	miR-92b
miR-22	miR-374	miR-203
miR-330*	miR-664	miR-130b
miR-484	miR-877	miR-449a
miR-339-3p	miR-24	miR-7a*
miR-106b	miR-205	miR-219-2-3p
miR-25	miR-196b	miR-23 a
miR-326	miR-126*	miR-322
miR-129	miR-20b-5p	miR-181a
miR-31	miR-128	miR-219-1-3p
miR-34a	miR-22*	miR-30d*
miR-652	miR-196c	miR-301b
miR-15b	miR-192	let-7e*
miR-130a	miR-151*	miR-196a
miR-378	miR-134	miR-9
miR-30c	miR-214	miR-27a*
miR-674-5p	miR-674-5p	miR-488
miR-874	miR-125b-5p	miR-183
miR-485	miR-365	miR-26b*
miR-93	miR-532-3p	miR-138
miR-671	miR-29c*	miR-382
miR-99b*	miR-7a	miR-760-3p
miR-139-3p	miR-147	let-7i*
miR-27b	miR-27a	miR-184
miR-21*	miR-181c	miR-25*
miR-328	miR-99b	miR-34c
miR-185	miR-125b-3p	miR-30a*
miR-743b	miR-193	miR-466c
miR-127	miR-342-3p	miR-28
miR-345-5p	miR-215	miR-142-3p
miR-140*	miR-132	miR-107
miR-20a	miR-532-5p	miR-148b-5p
miR-331	miR-17-3p	miR-483
miR-218	miR-7b	miR-223
miR-30e*	miR-34b	miR-361
miR-330	miR-193*	miR-503
miR-344-5p	miR-216a	miR-873
miR-493	miR-99a*	

[0387] The miRNAs listed in Table 17.1 provide examples of miRNAs that have been implicated in processes relative to tissue regeneration. miR-15b has been implicated in regulating apoptosis through BCL-2 and caspase regulation (Guo et al. 2009. *J Hepatol.* 50(4):766-78) as well as cell cycle progression through the regulation of cyclins (Xia et al. 2009. *Biochem Biophys Res Commun.* 380(2):205-10). miR-21 was shown to inhibit apoptosis by modulating survival pathways MAPK/ERK. The miR-30 family of miRNAs is critical for podocyte structure and function suggesting that an increase maybe necessary for glomerulogenesis. miR-141, 200a, 200c and 429 are all involved in modulating epithelial to mesenchymal transition (EMT) in response to TGF-β signaling possibly reducing fibrosis (Saal et al. 2009. *Curr. Opin. Nephrol. Hypertens.* 18:317-323). miR-146a and 151 have been implicated in NFκB modulation thus potentially reducing the inflammatory response in vivo (

[0388] Taganov et al. 2006. *Proc Natl Acad Sci USA.* 103(33):12481-6; Griffiths-Jones et al. 2006. *NAR.* 34 Database Issue: D140-D144). Collectively, these miRNAs regulate processes related to a successful regenerative outcome; thus making them candidate biomarkers for assay development. Overall, this data supports the concept that urinary microvesicles and/or their luminal contents are viable targets for regenerative assays as they contain proteins and miRNAs capable of modulating multiple pathways including: TGF β-1, NFκB, apoptosis, cell division and pluripotency in addition to providing practitioners with a non-invasive means of monitoring treatment.